Catalogue of American Amphibians and Reptiles.

Lynch, J.D. and M.C. Ardila-Robayo. 1993. *Eleutherodactylus anomalus.*

Eleutherodactylus anomalus (Boulenger)

Hylodes anomalus Boulenger, 1898:119. Type-locality, "Cachabé [= Cachabí], Provincia Esmeraldas, Ecuador." Syntypes, British Museum of Natural History (BMNH) 98.4.28.98-100 [re-registered as 1947.2.16.8-10], collected by Mr. W. Rosenberg (examined by authors).

Eleutherodactylus anomalus: Gorham, 1963:16. First use of combination.

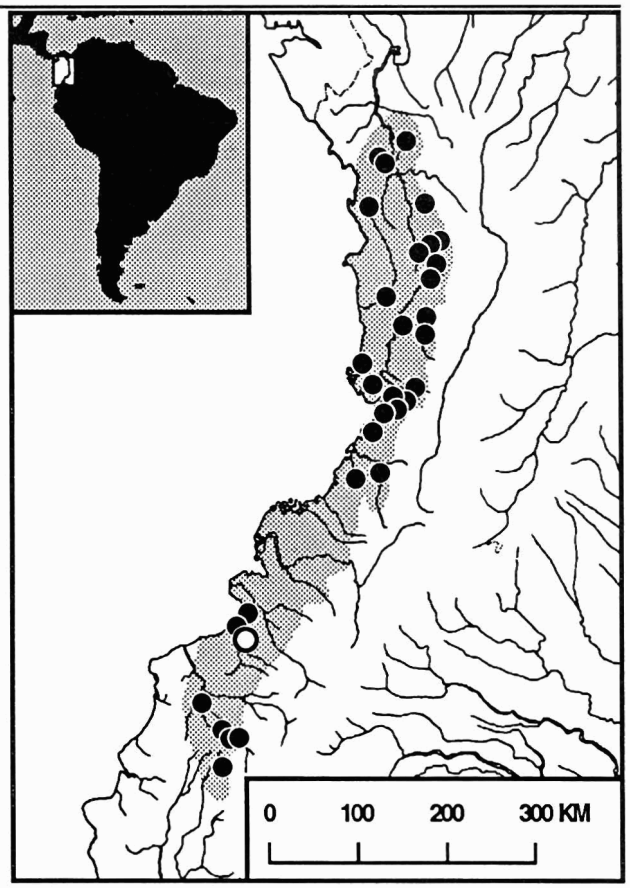
• **Content.** No subspecies are recognized.

• **Definition and Diagnosis.** *Eleutherodactylus anomalus* is a large species (adult males 31.5-62.1 mm SVL, adult females 76.5-92.4 mm SVL) of the *rugulosus* group of the subgenus *Craugastor.* The dorsum is coarsely tuberculate and spiculate with short folds. The tympanum is obscure and small (length < 1/3 eye length). Vomerine tooth rows are broad, nearly in median contact. Vocal slits are absent. No disks are present on fingers; toe disks are small, webbing extending nearly to the penultimate subarticular tubercle of the 4th toe. The modal webbing formula is: **I** 1 1/2 - 2 **II** 1 - 2 2/3 **III** 1 1/2 - 3 1/4 **IV** 3 1/4 - 1 **V**. An inner tarsal fold is present. The head is relatively wide (HW 41.8-48.3% SVL). The dorsum is brown with indistinct darker markings; throat brown with pale spots; venter cream; posterior surfaces of thighs brown with cream spots or marbling.

As far as is known, the species is mute. Males have large, white nuptial pads on their thumbs.

• **Descriptions.** Boulenger (1898) provided a brief original description which was translated into German by Nieden (1923). Cochran and Goin (1970) provided a detailed description of one syntype. Lynch and Myers (1983) provided a comprehensive description, including an account of variation.

• **Illustrations.** Boulenger's (1898) drawing of the dorsum and the roof of the mouth are excellent. Cochran and Goin (1970) provided photographs of a preserved syntype. Lynch and Myers (1983) provided black and white photographs of an adult and preserved early embryos; they also provided a drawing of the foot.



Map. Distribution of *Eleutherodactylus anomalus* in northwestern South America. The type-locality is indicated by a large, open circle. Other known localities are marked by solid circles.

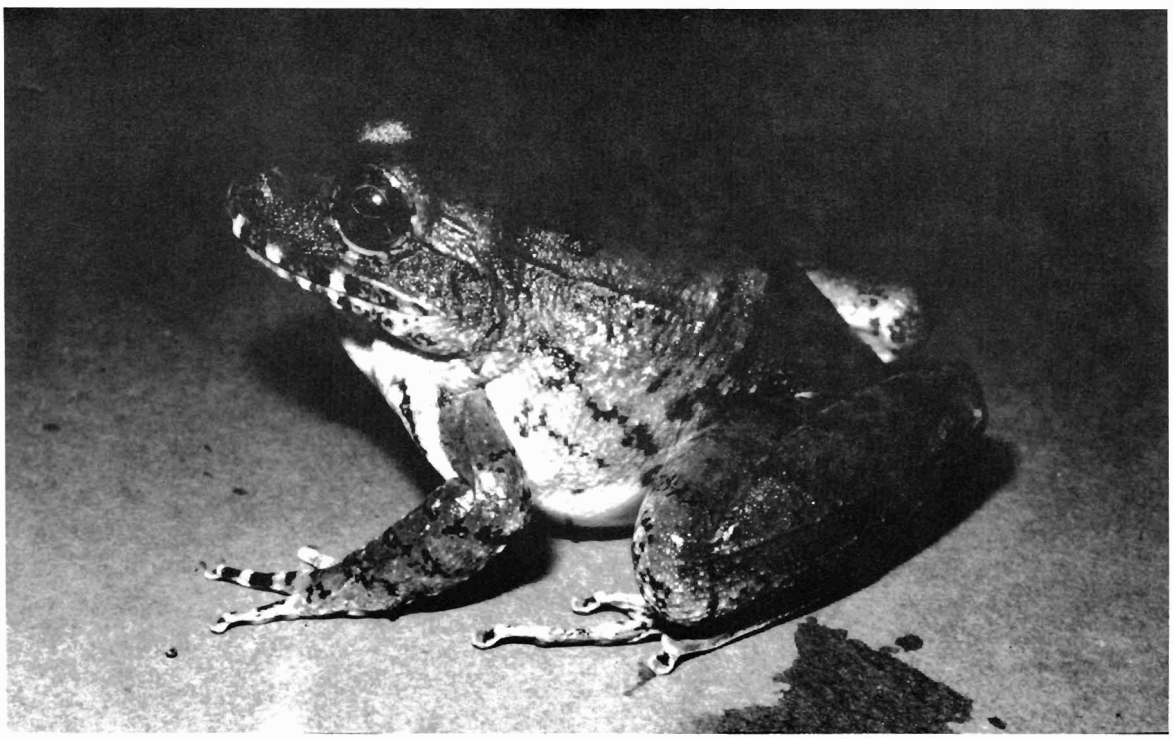


Figure. An adult female *Eleutherodactylus anomalus* (ICNMHN 13199, 90.2 mm SVL) from Municipio Restrepo, Departamento de Valle del Cauca, Colombia (from a kodachrome by J.D. Lynch).

• **Distribution.** *Eleutherodactylus anomalus* is distributed in the Pacific lowlands of Colombia and northern Ecuador at elevations below 1180 m. Most records are at lower elevations (20-600 m), but we are confident that the species occurs to at least 1180 m (Departamento de Valle del Cauca, municipio Dagua). The distribution contrasts sharply with that of *E. zygodactylus* (Lynch and Ardila-R., 1993), but the two species are microsympatric at several localities between 800 and 1180 m. The absence of records from southwestern Colombia reflects a lack of collecting efforts. We anticipate that the distribution of *E. anomalus* is continuous from the northern Chocó into northwestern Ecuador. The southern limit to the distribution corresponds with a reduction in amount of rainfall and its seasonality.

• **Fossil Record.** None.

• **Pertinent Literature.** Lynch and Myers' (1983) account for the species is the most complete available. Lynch (1990) provided a more up-to-date distribution and suggested that *E. anomalus* is the sister species of *E. cheiroplethus*, a species found on the slopes of the Cordillera Occidental of Colombia, because the two species share a separation of the nasal and frontoparietal bones.

• **Etymology.** The specific name is from the Latin "*anomalus*," meaning strange or anomalous, and was chosen to emphasize the peculiarity of the species in having substantial toe webbing (Boulenger, 1898) in a genus composed mostly of species with none.

• **Comment.** Cochran and Goin's (1970) account is of value in that the description is of a syntype, but they erred in reporting that paired external lateral vocal sacs were present (the species does not have vocal slits or sac). Their discussion of variation is brief and meaningless, because they confused *E. bufoniformis*, *E. longirostris*, *E. raniformis*, and *E. zygodactylus* with this species.

Lynch's (1975) focus on head width as an important character in *Eleutherodactylus* is challenged, in part, by *E. anomalus*, because the species has a moderately-wide head. The relationships of several species in the *rugulosus* group remain unresolved, but *E. anomalus* and *E. cheiroplethus* probably are related more closely to the broad-headed *E. bufoniformis* and *E. necerus* than is implied by recognizing a *bufoniformis* group for those two species as coordinate with the *rugulosus* group.

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John D. Lynch, School of Biological Sciences, The University of Nebraska, Lincoln, NE 68588, and **Maria Cristina Ardila-Robayo**, Instituto de Ciencias Naturales, Universidad Nacional de Colombia, Bogotá, D. E., Colombia.

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